

WHAT IS CLAIMED IS:

1. A characteristics adjustment method for a multi electron source having a plurality of electron emitting devices disposed on a substrate, comprising  
5 steps of:
  - measuring electron emission characteristics of each of the electron emitting devices and setting a characteristics adjustment target value;
  - applying a plurality of characteristics shift  
10 voltages having discrete values to some of the electron emitting devices, measuring electron emission characteristics of the electron emitting devices, and creating a characteristics adjustment table for each of the characteristics shift voltage  
15 values in accordance with change rates of the measured electron emission characteristics;
  - selecting a predetermined characteristics shift voltage value from the plurality of characteristics shift voltage values by referring to the  
20 characteristics adjustment table created for each of the electron emitting device and applying the predetermined characteristics shift voltage to the electron emitting device to shift the characteristics toward the characteristics adjustment target value;
  - 25 and
  - monitoring a change in the electron emission characteristics to revise a characteristics shift

condition.

2. A characteristics adjustment method for a multi electron source according to claim 1, wherein  
5 the characteristics adjustment table is created by measuring a change in emission current when different characteristics shift voltages are applied to some of the electron emitting devices of the multi electron source.

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3. A characteristics adjustment method for a multi electron source according to claim 1, wherein the electron emission characteristics are related to an electron emitting current or an emission light  
15 luminance.

4. A characteristics adjustment method for a multi electron source according to claim 1, wherein said step of revising the characteristics shift  
20 condition includes a step of judging whether the change rate of the electron emission characteristics after an initial characteristics shift pulse is applied falls in a predetermined range and a step of revising a pulse width of the characteristics shift  
25 voltage if the change rate does not fall in the predetermined range.

5. A characteristics adjustment method for a multi electron source according to claim 4, wherein the predetermined range is determined from upper and lower limit values of the change rate of the electron emission characteristics when the characteristics shift voltage is applied a preset maximum number of pulses to be applied and calculated from the change rates of the measured electron emission characteristics.

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6. A characteristics adjustment apparatus for adjusting electron emission characteristics of each of a plurality of electron emitting devices disposed on a substrate of a multi electron source, comprising:

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a selection control circuit for selecting the electron emitting device constituting the multi electron source;

a pulse peak and width value setting circuit for setting pulse peak and width values of a voltage to be applied to each of the electron emitting devices;

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a drive circuit for applying the voltage set by said pulse peak and width value setting circuit to the electron emitting device selected by said selection control circuit;

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a circuit for measuring an electron emitting

current of the electron emitting device driven by  
said drive circuit;

a memory for storing a measured value of the  
electron emitting current;

5 a calculation circuit for creating a  
characteristics adjustment table in such a manner  
that said selection control circuit selects some of  
the electron emitting devices, said pulse peak and  
width value setting circuit sets a plurality of  
10 characteristics shift voltages having discrete values,  
said drive circuit drives some of the electron  
emitting devices, an average of change rates of the  
electron emission characteristics of some of the  
electron emitting devices is calculated in accordance  
15 with values measured by said measuring circuit when  
each characteristics shift voltage is applied, and in  
accordance with the calculated average, the  
characteristics adjustment table is created for  
adjusting electron emitting current characteristics  
20 of the electron emitting device;

a memory for storing the characteristics  
adjustment table and the pulse peak and width values  
of the characteristics shift voltage to be applied to  
the electron emitting device; and

25 a control circuit for setting again the values  
set by said pulse peak and width value setting  
circuit in accordance with the characteristics  
adjustment table and the electron emitting current.